Claims:

1. A structure for adjusting waveforms of optical filters used in a Dense Wavelength Division Multiplexing system, said structure comprising:

   an input optical fiber and a return optical fiber;

   a biporose pigtail with two holes defined therein, the input and return optical fibers being secured in the holes;

   a graded index lens coupled with the pigtail at a first end of the graded index lens, whereby signals transmitted from the input fiber can enter the graded index lens; and

   a filter joined with a second end of the graded index lens, wherein the second end is opposite to the first end of the graded index lens, and the second end of the graded index lens is oriented at a first acute angle relative to a line that is perpendicular to an optical axis thereof, whereby the reflected signal from the filter can be transmitted through the graded index lens to the return fiber.

2. The structure as described in claim 1, wherein the holes of the pigtail are parallel to a center axis of the pigtail.

3. The structure as described in claim 2, wherein the holes are disposed at opposite sides of the center axis of the pigtail, but at different distances from the center axis.

4. The structure as described in claim 1, wherein an end of the pigtail coupled with the graded index lens is oriented at a second acute angle relative to a line that is perpendicular to a center axis of the pigtail.

5. The structure as described in claim 4, wherein the second acute angle is in the range of approximately 6-8 degrees.

6. The structure as described in claim 1, wherein the first end of the graded index lens is oriented at a third acute angle relative to a line that is perpendicular to a center axis of the pigtail.

7. The structure as described in claim 6, wherein the third acute angle is in the range of approximately 6-8 degrees.

8. The structure as described in claim 1, wherein the filter is a thin film filter.

9. A method of adjusting waveforms of an optical filter used in a Dense Wavelength Division Multiplexing system, the optical filter including a pigtail, an input optical fiber and a return optical fiber to be received in the pigtail, a graded index lens coupled with the pigtail at the first end of the graded index lens, a filter joined with the pigtail at a first end of the graded index lens, wherein the second end is opposite to the first end, the method comprising the steps of:

measuring an actual center-wavelength of the filter;

determining a difference between the actual center-wavelength and a desired center-wavelength of the filter;

determining an angle of the second end of the graded index lens relative to an optical axis of the graded index lens that will yield the desired center-wavelength, further determining distances of two holes from a center axis of the pigtail that will yield the desired center-wavelength, said two holes being to be formed in the pigtail to receive the input and return optical fibers;

grinding the second end to obtain the determined angle, further forming the two holes in the pigtail to obtain the determined distances;

integrating the filter with the graded index lens;

integrating the pigtail with the combination of the filter and the graded index lens; and

securing the input and return optical fibers within the two holes inside the biporose pigtail.

10. The method as described in claim 9, wherein the filter is a thin film filter.

11. The method as described in claim 9, wherein an end of the pigtail contiguous with the graded index lens is oriented at an acute angle relative to a line that is perpendicular to the optical axis of the pigtail.

12. The method as described in claim 11, wherein the acute angle is in the range of approximately 6-8 degrees.

13. The method as described in claim 9, wherein an end of the graded index lens contiguous with the pigtail is oriented at an acute angle relative to a line that is perpendicular to the optical axis of the graded index lens.

14. The method as described in claim 13, wherein the acute angle is in the range of approximately 6-8 degrees.

15. The method as described in claim 9, wherein the holes are parallel to the center axis of the pigtail.

16. The method as described in claim 9, wherein the holes are disposed at opposite sides of the center axis of the pigtail, but at different distances from the center axis.

17. A fiber optics system comprising:

an input optical fiber and a return optical fiber positioned on one side of a graded index lens;

a filter positioned on the other side of said graded index lens; wherein

a normal line of said filter is not parallel to a center-axis defined by said graded index lens.

18. The system as described in claim 17, wherein said input optical fiber and said return optical fiber are retained in a biporose pigtail, and wherein the input optical fiber and the return optical fiber are spaced from a center-axis of said biporose pigtail with different distances.

19. The system as described in claim 17, wherein the filter is tilted with an angle relative to an imaginary plane perpendicular to said center-axis of the lens.

20. The system as described in claim 19, wherein an end surface of said lens facing to the Biporose pigtail is tilted with another angle relative to another imaginary plane perpendicular to said center-axis of the lens, and said end surface and said filter are tilted either both clockwise or both counterclockwise.

21. The system as described in claim 18, wherein the normal line of said filter is directed toward one of said input fiber and said return fiber rather than the other, and the distance between said one of said input fiber and said center-axis of the

biporose pigtail is longer than that between said other of said input fiber and said center-axis of the biporose.

22. A method of adjusting an inherent center wavelength of a filter to a desired center wavelength during transmission, comprising the steps of:

providing an input fiber and a return fiber in a holding device;

positioning a graded index lens confronting said holding device;

positioning a filter beside said lens opposite to said holding device;

aligning the holding device, the lens and the filter in an axial direction; and

intentionally tilting the filter relative to said lens to be in a non-perpendicular manner relative to said axial direction to define an angle θ between the filter and an imaginary plane perpendicular to said axial direction; whereby

by following equation $\lambda_m = \lambda_0 (1 - a \times \sin 2\theta)$, wherein "$\lambda_0$" is the inherent center wavelength of the filter when θ is zero , "λ_m" is a real transmission center wavelength after tilting with the angle θ, "a" is a constant, a value of which is determined by a refractive index of a dielectric film of the filter, the real transmission center wavelength can be finely tuned to be closer to the desired transmission center wavelength.